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广西洞穴植物一新种——木论耳蕨[*]

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摘要：报道了广西石灰岩洞穴植物一新种——木论耳蕨（*Polystichum mulunense* X. L. Shen & R. H. Jiang），本种形态特征近似广西耳蕨（*Polystichum guangxiense* W. M. Chu et H. G. Zhou）和凤山耳蕨（*P. fengshanense* L. B. Zhang et H. He），不同之处在于本种根状茎的鳞片披针形，边缘被稀疏的细齿；叶片基部略收缩；小羽片长斜方形至斜方形，革质，疏生，以 60~70°的角度斜升羽轴。

关键词：耳蕨；木论耳蕨；广西；溶洞；新物种
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Polystichum mulunense（Dryopteridaceae），a New Species from Karst Caves in Guangxi，China

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Abstract：*Polystichum mulunense* X. L. Shen & R. H. Jiang，a new species from karst caves in Guangxi，China，is described and illustrated. This new species is morphologically similar to *Polystichum guangxiense* and *P. fengshanense*，but can be easily distinguished from the latter by rhizome scales lanceolate，margins sparsely serrulate and pinnules coriaceous，attached at *ca*. 60-75 degree angles to rachis and rhomboidal to trapeziform.

Key words：*Polystichum*；*Polystichum mulunense*；Guangxi；Karst cave；New species

The limestone is mainly distributed in Guangxi，Yunnan and Guizhou Provinces in south and southwestern China. This area is botanically well-known for its high species diversity，endemism and rare species. During fieldwork in Guangxi，an attractive species that morphologically did not match the description of any of the known species of Polystichum was discovered. After comparing with all described species of the genus（Qin and Liu，2010；Jiang *et al.*，2011a,b,c,d，2012；Kung *et al.*，2001；Zhang and He，2009a,b，2010，2011；Zhou *et al.*，1996），we found that it is different from all the known species of Polystichum and represents as a new species，which we hereby describe and illustrate.

Polystichum mulunense X. L. Shen & R. H. Jiang，sp. nov.（Figs. 1 & 2）

Type：CHINA. Guangxi：Huanjiang County，Chuanshan Town，Mingli Village，Yangjuan cave，alt 690 m，25°6′4″ N，107°58′1″ E，23 Apr. 2012，R. H. Jiang *et al.* ML1240（holotype：IBK，isotype：IBK）

Diagnosis：*Polystichum mulunense* is similar to

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P. guangxiense W. M. Chu et H. G. Zhou, but differing from the later byits lamina lanceolate, base slightly contracted; pinna coriaceous, remote, oblique, attached at *ca*. 60-75 degree angles to rachis, rhomboidal to trapeziform.

Plants perennial, evergreen, 10-22 cm tall. Rhizome ascending, 1-2.5 mm in diam., densely covered with scales; scales lanceolate, *ca*. 0.7 mm × 0.1 mm, brown, apex filiform, margins sparsely serrulate. Frondscaespitose; stipe 0.8-5.5 cm long, 1-2 mm in diam., adaxially canaliculate, stramineous, densely scaly, scales ovate-lanceolate, brown, margins long-dentate with outgrowths, apex filiform, distal stipe scales similar but smaller, narrower and shorter toward apex of rachis; lamina lanceolate, 6-17 cm × 2.2-2.8 cm, base slightly contracted, apex acute, 1-pinnate; rachis stramineous, covered with scales, scales similar stipe scales but smaller and narrower, abaxially densely covered with scales, scales filiform, adaxially canaliculate, sparsely scaly, scales

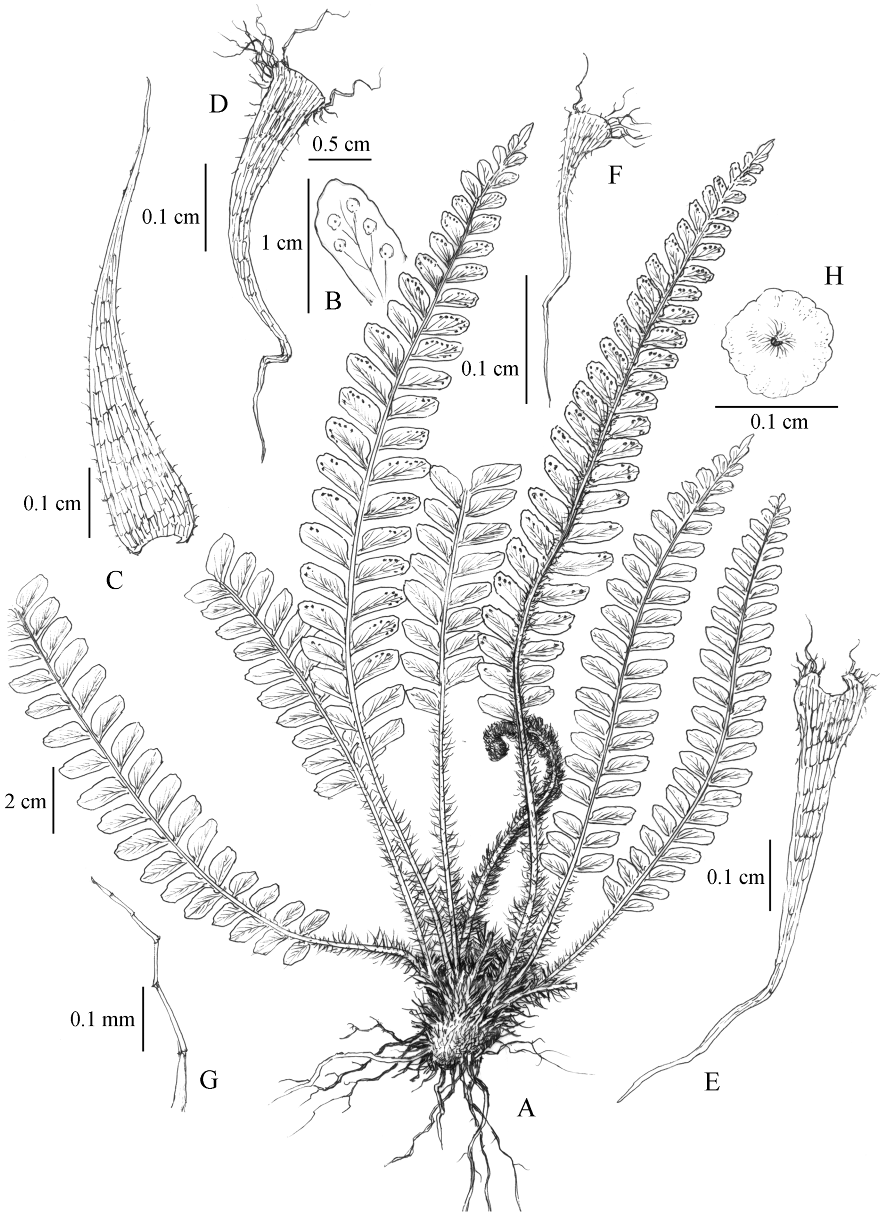

Fig. 1 *Polystichum mulunense* X. L. Shen & R. H. Jiang.

A. Habit; B. Portion of pinna; C. Scale from base of petiole; D. Scale from middle of petiole adaxially; E. Scale from middle of petiole abaxially; F. Scale from rachis; G. Scale from abaxial surface; H. Indusium

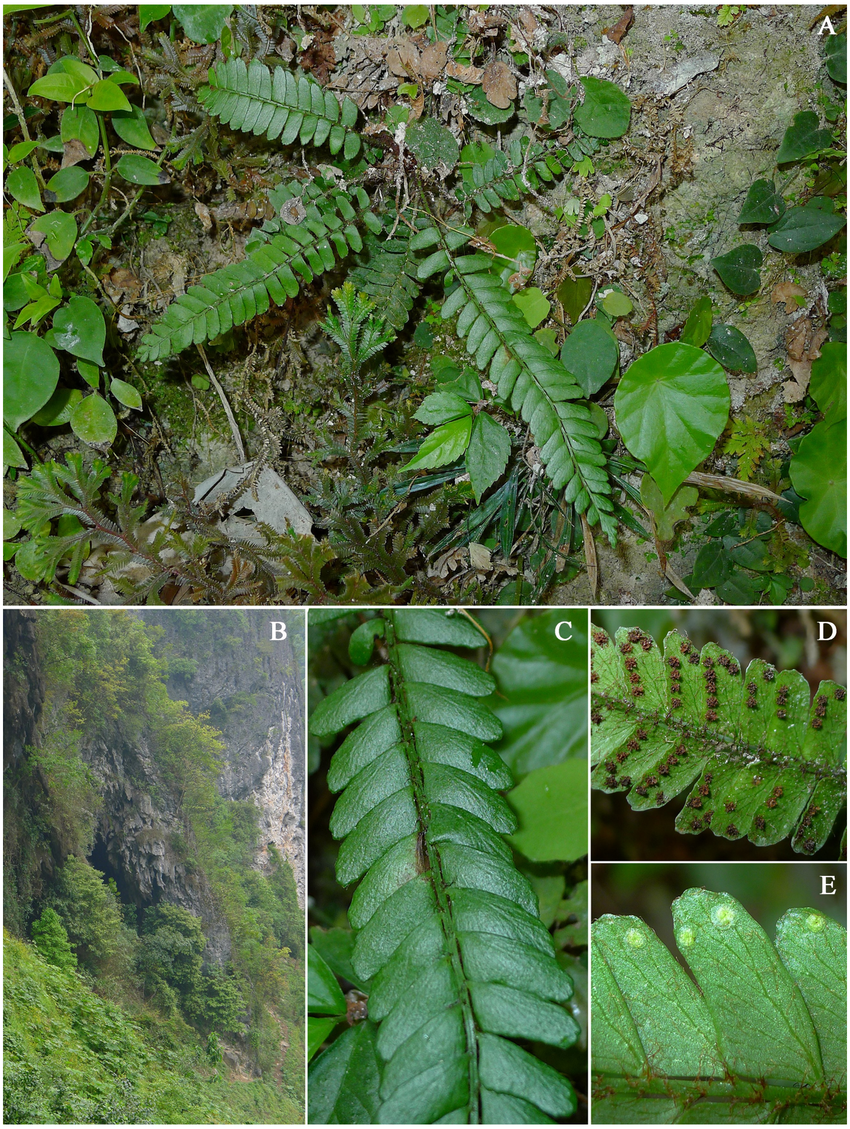

Fig. 2　*Polystichum mulunense* X. L. Shen & R. H. Jiang

A. Habit; B. Outside view of Yangjuan Cave where *P. mulunense* was discovered for the first time; C. Portion of lamina; D–E. Portion of lamina, showing sori

similar abaxially; pinnae 13–22 pairs, coriaceous, dull green, alternate and subopposite, remote, oblique, attached at *ca*. 60–75 degree angles to rachis, basal pairs have shortly petiolate, upwards sessile, rhomboidal to trapeziform, 1.3–2.5 cm × 0.4–0.6 cm, base asymmetric, acroscopic margins sub-parallel to rachis, acroscopic base rounded or slightly auriculate, distal acroscopic margins shallowly undulate or almost entire, abaxially scaly, basiscopic base truncate and often forming a 80–100 degree angle with rachis, apex obtuse, sometimes mucronate, adaxially lustrous and glabrous, distal acroscopic margins entire or shallowly undulate, abaxial surface scaly, scales linear or subulate, filiform, as if have articulation; venation pinnate, visible abaxially and slightly obscure adaxially, concave; lateral veins free, single or forked. Sori terminal on veins of distal pinnae, 2–6 on acroscopic, 0–3 on distal basiscopic side, 1.3–3.2 mm in diam., close to pinna margin; indusia peltate, 0.6–1.7 mm in diam., membranaceous, margin repand or erose, caducous.

Distribution and ecology: So far *Polystichum mulunense* is only known from two karst caves in Mulun National Nature Reserve in Guangxi, growing on the rock face. The population sizes are very small and the distribution area is narrow. The status of *Polystichum mulunense* should be classified as CR (critically endangered) following the IUCN guidelines (IUCN, 2008) based on the observations below: (1) It occurs only in two caves and have a small number of individuals; (2) Total known plants in all populations are fewer than 250 mature individuals.

Etymology: The specific epithet "mulunense" is derived from the type locality, Mulun National Nature Reserve, Huanjiang County, Guangxi.

Paratype: CHINA. Guangxi: Huanjiang County, Chuanshan Town, Mingli Village, Yangjuan cave, alt 690 m, 25°6′4″N, 107°58′1″E, 23 Apr. 2012, R. H. Jiang *et al*. ML1241, ML1242 (IBK)

Relationship: This new species is similar to *Polystichum guangxiense* W. M. Chu et H. G. Zhou and *P. fengshanense* L. B. Zhang et H. He, but differs by the following characters (Table 1): The scales from rhizoma are lanceolate, apex filiform, margins sparsely serrulate; lamina lanceolate, base slightly contracted; pinna 13-22 pairs, coriaceous, remote, oblique, attached at *ca*. 60-75 degree angles to rachis, rhomboidal to trapeziform, apex obtuse, sometimes have mucronulate, distal acroscopic margins entire or shallowly undulate, basiscopic base truncate and often forming a 80-100 degree angle with rachis; indusia margin repand or erose, caducous.

Table 1 Comparison of three Chinese species of *Polystichum*

Character	*Polystichum mulunense*	*P. guangxiense*	*P. fengshanense*
Rhizome scales	lanceolate, brown, margins sparsely serrulate	lanceolate, brown, margins sparsely serrulate	ovate-deltate or lanceolate, brown, margins entire
Laminae	lanceolate, base slightly contracted	oblong-lanceolate, base no angusta contracted	oblanceolate, gradually narrowed toward base from below middle of lamina
Pinnules	coriaceous, remote, oblique, attached at *ca*. 60-75 degree angles to rachis, rhomboidal to trapeziform	chartaceous to coriaceous, subvertical, attached at *ca*. 80-100 degree angles to rachis, oblong or rhomboidal	chartaceous, remote, sub-vertical, attached at *ca*. 70-90 degree angles to rachis, oblong, basalmost pairs nearly fan-shaped and 1/4-1/3 as long as middle ones

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